REMARKS

Summary of the Office Action

Claims 4 and 7-11 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claims 1-11 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,589,227 to Klint.

Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Klint in view of U.S. Patent Application Publication No. 2003/0069522 to Jacobsen et al. ("Jacobsen").

Claims 12-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Klint in view of U.S. Patent No. 5,932,035 to Koger et al. ("Koger").

Summary of the Response to the Office Action

Applicants have amended claims 1, 2, 4 and 7-14.

Claims 1-14 are pending.

Matters of Form

Claims 4 and 7-11 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants have amended claims 4 and 7-11 to address the Examiner's concerns described at paragraph 1 of the Office Action. However, Applicants submit that the amendments do not narrow the scope of the claims. Withdrawal of the rejection under 35 U.S.C. § 112, second paragraph is requested.

Applicants have amended claims 1, 2 and 12-14 to conform the claims to U.S. practice, and to particularly point out and distinctly claim Applicants' invention. Again, Applicants submit that the amendments do not narrow the scope of the claims in any manner.

All Claims Define Allowable Subject Matter

Claims 1-11 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,589,227 to Klint. Applicants respectfully traverse the rejection under 35 U.S.C. § 102(b), of claims 1-11. Claim 1 recites a wire-stranded hollow coil body, including a multitude of coil line elements stranded along a predetermined circular line to form a flexible linear tube. The flexible linear tube is stranded under a strand-turn resistant load and heat treated to remove residual stress upon formation. Thus the invention provides, for example, a primary forming flexible linear tube R may be primarily formed as an ordinary rope structure. Then the primary forming flexible linear tube R is further stranded in a stranding machine 10 with one end clamped at a rotationally active chuck 11 and the other end clamped at a slide-type fixture chuck 12. A static weight W provides a strand-turn resistant load when the primary forming flexible linear tube R is stranded. A conductor line 15 may be connected between the rotationally active chuck 11 and the slide-type fixture chuck 12 so as to apply an electric current and heat treat the primary forming flexible linear tube R. Accordingly, the flexible linear tube approaches idealistic linear response characteristics such as a high straightness-linearity and rotation-following ability, as described at page 10, ll. 1-21 and Table 1 of Applicants' specification. Support for claim 1 is provided at, for example, page 15, line 16 – page 16, line 8, and Fig. 4 of Applicants' specification as originally filed.

In contrast, Klint discloses a method of making a helical coil spring in which a multitude of coil line elements are stranded around a core metal (*i.e.* mandrel). As described at col. 6, ll. 20-24, and illustrated in Fig. 7 of Klint, a row A of wires 5 are wound around a mandrel 7. After the winding, the mandrel and the coils are subjected to a heat treatment to remove residual stresses from the wires. Applicants respectfully submit that Klint does not teach or suggest at least the features of a flexible linear tube being stranded under a strand-turn resistant load, as recited in claim 1.

Claims 2-11 depend from claim 1 and recite the same combination of allowable features recited in claim 1, as well as additional features that define over the prior art. Accordingly, it is requested that the rejection under 35 U.S.C. § 102(b), of claims 1-11, be withdrawn.

For example, claim 2 recites that the flexible linear tube is lengthwisely divided into pluralistic sections, each of which has a different number of strand turns. Support for claim 2 is provided at, for example, page 19, line 3 – page 20, line 3, and Fig. 7 of Applicants' specification as originally filed. Klint is directed to a cerebral catheter that advances a leading distal end into sinuous and meandering paths. Klint provides flexibility by changing the number of coil elements stranded around the core metal, or by forming gaps by spacing the neighboring coil line elements by a predetermined amount. However, Applicants submit that Klint does not teach or suggest at least the features of a wire-stranded hollow coil body including a flexible linear tube that is lengthwisely divided into pluralistic sections, each of which has a different number of strand turns, as recited in claim 2.

With respect to claims 7-11, when the invention is applied to an endscope treatment device, the invention can prevent the tensile force from increasing in the helical coil structure, and can also prevent a pair of biopsy cups from being opened inadvertently.

Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Klint in view of Jacobsen. Applicants respectfully traverse the rejection under 35 U.S.C. § 103(a), of claim 3. Claim 3 depends from claim 1 and recites the same combination of allowable features recited in claim 1, as well as additional features that define over the prior art. Applicants respectfully submit that Jacobsen fails to overcome the deficiencies of Klint. In particular, Jacobson fails to teach or suggest at least the features of a flexible linear tube being stranded under a strand-turn resistant load. Moreover, claim 3 recites the flexible linear tube being lengthwisely divided into pluralistic sections, each of which has residual stresses removed in different degrees. Support for claim 3 is provided at, for example, page 20, line 20 – page 21, line 9, and Fig. 12 of Applicants' specification. In Klint, residual stresses appear when the coil line elements are wound around the core metal, and the residual stresses are equally removed. Jacobson discloses a plurality of slots cut into the body in the longitudinal direction so as to change the bending rigidity (EI) which affects the flexibility. Applicants submit that neither Klint nor Jacobson teach or suggest at least the features of the flexible linear tube being lengthwisely divided into pluralistic sections, each of which has residual stresses removed in different degrees, as recited in claim 3. Accordingly, it is requested that the rejection under 35 U.S.C. § 103(a), of claim 3, be withdrawn.

Claims 12-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Klint in view of Koger. Applicants respectfully traverse the rejection under 35 U.S.C. § 103(a), of claims

12-14. Claim 12 recites a method of making a wire-stranded hollow coil body, including clamping one end of a flexible linear tube by means of a rotationally active chuck, arranging the other end to be slidable in its lengthwise direction and clamping the other end by a fixture chuck to impart a tensile force, and actuating the rotationally active chuck to strand the flexible linear tube.

As described above, Klint merely shows a row of wires wound around a mandrel. Koger describes two production methods. A first production method is described at col. 6, ll. 23-32 and illustrated in Fig. 7. A wire 44 is drawn from a supply roll 80 through feed rollers 82, and then passes through winding points 84 that bend the wire into a coil 86. A heating stage 88 heats the coil coming off the winding points. A second production method is described at col. 6, ll. 33-39 and illustrated in Fig. 8. A wire 44 winds off a supply roll 80 to feed rollers 82. The wire is then pulled onto a rotating die 100 in the form of a screw with a central mandrel. A forming heater 88 heats the wire wound onto the mandrel as the die rotates. Applicants respectfully submit that neither Klint nor Koger teach or suggest at least the features of clamping one end of flexible linear tube by means of a rotationally active chuck, arranging the other end to be slidable in its lengthwise direction and clamping the other end by a fixture chuck to impart a tensile force, and actuating the rotationally active chuck to strand the flexible linear tube, as recited in claim 12. Accordingly, it is requested that the rejection under 35 U.S.C. § 103(a), of claim 12, be withdrawn.

Claim 13 recites a method of making a wire-stranded hollow coil body, including clamping one end of a flexible linear tube by means of a rotationally active chuck, clamping mid-portions of the flexible linear tube by means of mid-clamps, and stranding the flexible linear

tube in different strand turns depending on spans between the rotationally active chuck and each of the mid-clamps. Applicants respectfully submit that neither Klint nor Koger teach or suggest at least these features. Accordingly, it is requested that the rejection under 35 U.S.C. § 103(a), of claim 13, be withdrawn.

Claim 14 recites a method of making a wire-stranded hollow coil body, including accommodating lengthwise divided sections of a flexible linear tube into heating devices, each of which has a different heating condition depending on the lengthwise divided sections, so as to heat treat the divided sections individually to have residual stresses removed in different degrees. As described above, Klint merely shows that after winding, the mandrel and the coils are subjected to a heat treatment to remove residual stresses from the wires. The purpose of the heat treatment disclosed in Koger is to eliminate residual stresses while at the same time achieving super elastic characteristics that induce the plateau in the nitinol (Ni-Ti alloy). This prevents the rotational speed from decreasing due to slight torsions and strains. In the first production method of Koger, a heating stage 88 heats the coil coming off the winding points. In the second production method of Koger, a forming heater 88 heats the wire wound onto the mandrel as the die rotates. Applicants respectfully submit that neither Klint nor Koger teach or suggest at least the features of accommodating lengthwise divided sections of a flexible linear tube into heating devices, each of which has a different heating condition depending on the lengthwise divided sections, so as to heat treat the divided sections individually to have residual stresses removed in different degrees, as recited in claim 14. Accordingly, it is requested that the rejection under 35 U.S.C. § 103(a), of claim 14, be withdrawn.

CONCLUSION

In view of the foregoing, Applicants respectfully request reconsideration and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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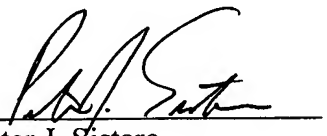
Dated: March 14, 2005 By: 

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